

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Previously Presented) A method for removing conjugated olefins from a composition comprising:
 - contacting the composition with a Diels-Alder dienophile to convert conjugated olefins to a Diels-Alder adduct; and
 - arresting the Diels-Alder adduct via a selectively permeable barrier or a phase differential.
2. (Original) The method of claim 1 further comprising arresting the Diels-Alder dienophile.
3. (Canceled)
4. (Previously Presented) The method of claim 1 wherein the selectively permeable barrier is a membrane.
5. (Canceled)
6. (Previously Presented) The method of claim 1 wherein the Diels-Alder adduct is a solid and the composition is not a solid.
7. (Original) The method of claim 6 wherein the Diels-Alder dienophile comprises malic anhydride, benzoquinone, or combinations thereof.

8. (Previously Presented) The method of claim 1 wherein the Diels-Alder adduct is a liquid and the composition is not a liquid.
9. (Previously Presented) The method of claim 1 wherein the selectively permeable barrier is disposed in a vessel.
10. (Original) The method of claim 9 wherein the selectively permeable barrier forms a removable container arresting the Diels-Alder adduct.
11. (Original) The method of claim 6 wherein the solids are disposed in a filter.
12. (Original) The method of claim 11 wherein the filter comprises alumina, activated carbon, or combinations thereof.
13. (Original) The method of claim 1 further comprising recovering a composition having a lower concentration of conjugated olefins.
14. (Original) The method of claim 13 wherein the recovered composition comprises less than or equal to about 80 parts per million by weight of conjugated olefins.
15. (Original) The method of claim 13 wherein the lower concentration of conjugated olefins is about 25 percent lower.

16. (Original) The method of claim 13 wherein the recovered composition comprises less than or equal to about 5 weight percent of Diels-Alder dienophile.

17. (Original) The method of claim 13 wherein the recovered composition comprises less than or equal to about 5 weight percent of Diels-Alder adduct.

18. (Original) A method comprising:

confining a Diels-Alder dienophile to a first side of a selectively permeable barrier wherein the barrier is more permeable to conjugated olefins and less permeable to Diels-Alder dienophile and Diels-Alder adduct; and

contacting a composition comprising mono-olefins and conjugated olefins with the Diels-Alder dienophile to form Diels-Alder adduct;

wherein the contacting reduces the concentration of conjugated olefins in the composition.

19. (Original) The method of claim 18 wherein the contacting further comprises exposing the composition to a second side of the barrier such that conjugated olefins permeate to the first side of the barrier.

20. (Original) The method of claim 19 wherein the contacting results in a lower concentration of conjugated olefins in the composition on the second side of the barrier.

21. (Original) The method of claim 20 wherein the Diels-Alder dienophile and Diels-Alder adduct are confined to the first side of the barrier.

22. (Previously Presented) A method for removing conjugated olefins from a composition comprising:

 bubbling the composition through a liquid comprising Diels-Alder dienophile to form a liquid comprising Diels-Alder adduct; and

 arresting the Diels-Alder adduct,

 wherein the bubbling and the arresting occur in a substantially common zone.

23. (Original) A method for removing conjugated olefins from a non-solid composition comprising contacting the composition with a solid comprising Diels-Alder dienophile to form a solid comprising Diels-Alder adduct.

24. (Previously Presented) The method of claim 1 wherein the Diels-Alder dienophile and the Diels-Alder adduct do not mix homogenously with a bulk of the composition before, during, or after the contacting.

25. (Previously Presented) The method of claim 1 wherein the Diels-Alder adduct is arrested about simultaneously, about concurrently, about instantaneously, or about immediately following the formation of the Diels-Alder adduct.

26. (New) The method of claim 1 wherein the composition further comprises mono-olefins.

27. (New) The method of claim 22 wherein the composition further comprises mono-olefins.

28. (New) The method of claim 1 wherein the Diels-Alder dienophile is maleic anhydride, derivatives of maleic anhydride, benzoquinone, derivatives of benzoquinone, dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, or combinations thereof.

29. (New) The method of claim 1 wherein the Diels-Alder dienophile is maleic anhydride, dimethyl acetylene dicarboxylate, benzoquinone, or combinations thereof.

30. (New) The method of claim 18 wherein the Diels-Alder dienophile is maleic anhydride, derivatives of maleic anhydride, benzoquinone, derivatives of benzoquinone, dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, or combinations thereof.

31. (New) The method of claim 18 wherein the Diels-Alder dienophile is maleic anhydride, dimethyl acetylene dicarboxylate, benzoquinone, or combinations thereof.

32. (New) The method of claim 22 wherein the Diels-Alder dienophile is maleic anhydride, derivatives of maleic anhydride, benzoquinone, derivatives of benzoquinone, dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, or combinations thereof.

33. (New) The method of claim 22 wherein the Diels-Alder dienophile is maleic anhydride, dimethyl acetylene dicarboxylate, benzoquinone, or combinations thereof.

34. (New) The method of claim 23 wherein the Diels-Alder dienophile is maleic anhydride, derivatives of maleic anhydride, benzoquinone, derivatives of benzoquinone, dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, or combinations thereof.

35. (New) The method of claim 23 wherein the Diels-Alder dienophile is maleic anhydride, dimethyl acetylene dicarboxylate, benzoquinone, or combinations thereof.